W. SLICER.

Axle.

No. 255. Patented July 5, 1837.

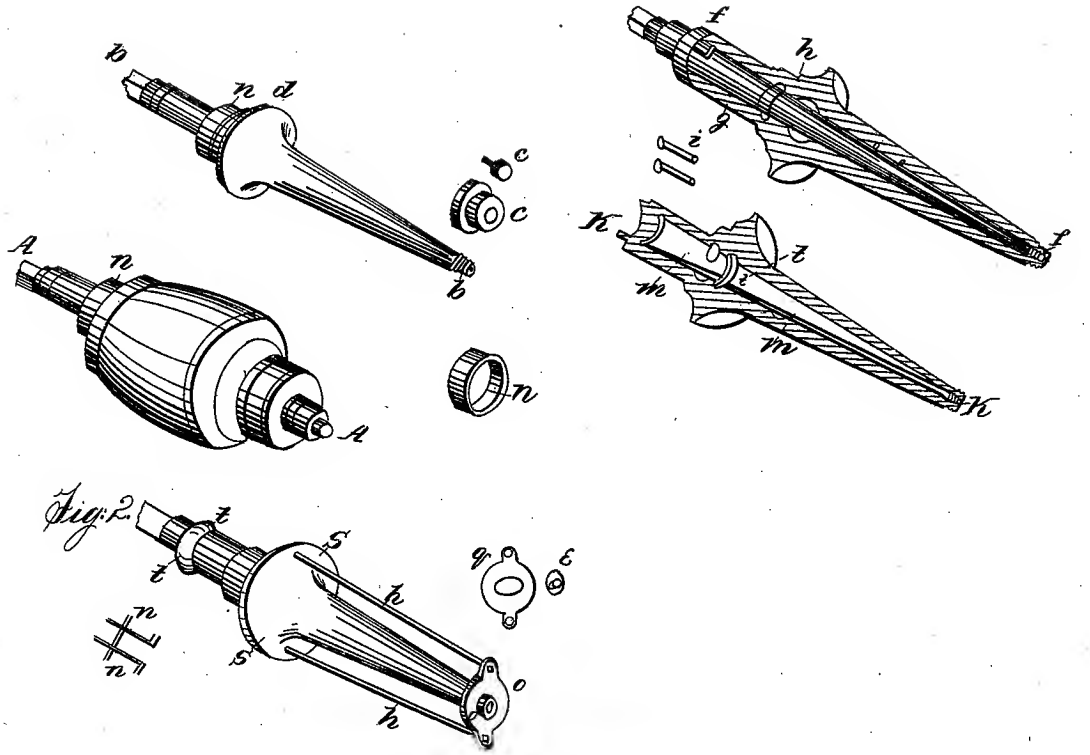

Fig. 2.

Witnesses:

C. A. Seaman

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UNITED STATES PATENT OFFICE.

WILLIAM SLICER, OF BALTIMORE, MARYLAND.

AXLE AND THOROUGH BOX FOR CARRIAGES OF EVERY DESCRIPTION.

Specification of Letters Patent No. 255, dated July 5, 1837.

To all whom it may concern:

Be it known that I, WILLIAM SLICER, of the city of Baltimore and State of Maryland, have invented a new Improvement on Axle and Thorough Boxes for Pleasure and Burthen Carriages of Every Description, Cars, Fire-Engines, &c.; and I do hereby declare that the following is a full and exact description.

In the accompanying drawing A, A represent a coach hub, box and arm of an iron axle. *b*, *b*, is the box and axle arm without the hub. *c*, a nut which goes on the outer end of the box by means of which the box is firmly fixed in the hub, and may be readily removed at pleasure. *d*, is a collar or flange on the box, against which the back end of the hub is pressed. *e*, is a screw which passes into the outer end of the box, for the purpose of stopping it, and is used for the bearing point, the point of the screw revolving against the small point of the axle, thereby superceding the use of a collar, washer or shoulder on the axle. From *f*, to *f*, is a vertical section of the box showing the arm of the axle lying in it. *h*, is a groove around the arm into which the pins *i*, *i*, are lodged after passing through one side of the box; their points lodging in the other side of the box. This is one of the methods of fastening the wheel on the axle. *k*, *k*, is the other half of the box showing its inner form and dimensions. *t*, is a reservoir for oil. *m*, *m*, grooves for its distribution through the box. *n*, is a band which goes on the back end of the box and near the back end of the hub, and is used to keep the pins *i*, *i*, in their places.

Figure 2, represents a box and its appendages for a wooden axle, without the hub. O, is a coupling used as a fastening for the box in the hub. *p*, *p*, the bolts running lengthwise through the hub, having nuts on their ends for additional fastenings. *q*, end view of the coupling having an oval hole to receive the oval end of the box, so that a quarter turn will lock them. *s*, *s*, is a large collar or flange which rests against the back end of the hub. From *s*, *s*, to *t*, *t*, is the projection of the box back of the hub. *u*, *u* are fastenings which pass under the back end of the box and between it and the arm of the axletree, their hooked points lodging in a groove in the inner part of the box, which revolves over those points in the revolution of the wheel on the axle. These hooks are secured in place on the axle, by a bolt passing through them and into the axle back of, and near the box.

My improvement consists, first, in the extension of the box back of the hub, by means of which I combine the advantage of a long armed axle with the neat appearance of a short hub. The advantage of the former is the distribution of the friction over a greater length and surface; thereby rendering it harmless. Secondly, the axle is stronger than a short one of the same diameter, because it is better proportioned to the diameter of the wheel and affords a more formidable resistance to the lever influence of the wheel on uneven roads, and consequently runs more steady.

Another advantage will be found in the tapering form of the arm, because of the aggregate surface the box travels over in each revolution of the wheel is less than the cylindrical axles now commonly used. This is another means of reducing friction.

Another important advantage in those improvements is the use of the axle without collar or washer for the box or wheel to bear against endwise; that is effected by using the point of the screw to revolve and bear against the small end of the axle, which plan takes off much of the usual friction. Another great advantage is the method of placing and fastening the box in the hub which furnishes the means of removing and replacing it at pleasure.

What I claim as my invention and desire to secure by Letters Patent is,

1. The extension or projection of the box back of the hub, by which I use an axle with an arm and box of extra length.

2. The outer form of the box, being constructed with a large flange or collar, against which the hub is firmly fixed by a nut on the small or outer end of the box, and against the outer end of the hub.

3. The method of fastening the box in the hub, by a nut, coupling or other fastening on the outer or small end of the box.

4. Using the outer end of the box by stopping it with a screw or otherwise for the point of bearing, to prevent the wheel from

running too far back on the axletree; the advantages of this arrangement are many, as has already been remarked.

5. The use of this or any other form of axletree without collar, washer, shoulder, hurter or other bearing except the point of the axle.

6. The use of this conical or pointed axle without nut or link-pin or other fastening on its outer end.

WM. SLICER.

Witnesses:
C. A. LEAMAN,
A. PINDELL.